

MCF 3M
Test Review Ch 4

Opener

Solve for the zeros of the following functions

i) $f(x) = -x^2 + 3x + 10$

ii) $f(x) = 2x^2 - 7x - 18$

Mar 29-8:18 AM

MCF 3M
Test Review Ch 3 & 4

Opener

Solve for the zeros of the following functions

i) $f(x) = -x^2 + 3x + 10$
 $f(x) = -(x^2 - 3x - 10)$
 $f(x) = -(x(x+2) - 5(x+2))$
 $f(x) = -(x+2)(x-5)$
 -2 and $+5$

ii) $f(x) = 2x^2 - 7x - 18$
 $= 2x^2 + 3x - 12x - 18$
 $= x(2x+3) - 6(2x+3)$
 $= (2x+3)(x-6)$
 $-\frac{3}{2}$ and $+6$

A/M
 $-9 \mid -36$
 $-12 \mid +3$
 $2x+3 = 0$
 $2x = -3$
 $x = -\frac{3}{2}$

Mar 29-8:18 AM

State the number of zeros in the following functions

i) $f(x) = -2(x+3)^2 - 6$

ii) $f(x) = (x+3)(x-3)$

iii) $f(x) = 25x^2 + 40x + 16$

Mar 29-8:25 AM

State the number of zeros in the following functions

i) $f(x) = -2(x+3)^2 - 6$

ii) $f(x) = (x+3)(x-3)$

iii) $f(x) = 25x^2 + 40x + 16$

$(5x+4)^2$

0 zeros
b/c vertex below x axis and points down

2 zeros
1 zero
perfect square

Mar 29-8:25 AM

When does a rocket modeled by the function $f(x) = -2x^2 + 10x - 6$ reach its maximum height? When does it reach 3m?

p.226 q.7-11
p.254 q.5-10
p.256 q.4-6, 8,10

Mar 29-8:27 AM

Tools Quadratics

Roots → Sub into Standard form

1) Decomposition A/M

2) Quad Formula

Zeros → 1) Decomposition

2) $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ if non-factorable

$\frac{s+t}{2}$ f(h,k)

Vertex

1) $\frac{s+t}{2} = x_{\text{Vertex}}$

2) Complete the Square

Oct 19-9:57 AM

When does a rocket modeled by the function $f(x) = -2x^2 + 10x - 6$ reach its maximum height? When does it reach 3m?

$$f(x) = -2x^2 + 10x - 6$$

$$f(x) = -2(x^2 - 5x) - 6$$

$$f(x) = -2(x^2 - 5x + \frac{25}{4} - \frac{25}{4}) - 6$$

$$f(x) = -2(x - \frac{5}{2})^2 + \frac{25}{2} - 6 = \frac{25}{2}$$

$$f(x) = -2(x - \frac{5}{2})^2 + \frac{50}{4} - 6$$

$$f(x) = -2(x - \frac{5}{2})^2 + \frac{50}{4} - \frac{24}{4}$$

$$f(x) = -2(x - \frac{5}{2})^2 + \frac{26}{4}$$

The rocket reaches a maximum height of 6.5m at 2.5 sec.

ii) $0 = -2x^2 + 10x - 6$

$$3 = -2x^2 + 10x - 6$$

$$0 = -2x^2 + 10x - 9$$

$$0 = -2x^2 + 10x - 9$$

Vertex?

$$0 = 2x^2 - 10x + 9$$

$$a = 2$$

$$b = -10$$

$$c = 9$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\frac{10 \pm \sqrt{100 - 72}}{4}$$

The rocket reaches a height of 3m at 1.5 sec and at 3 sec.

When Finished : Complete q. 1-8 p155

Mar 29-8:27 AM

$$\begin{aligned}
 f(x) &= 2x^2 + 3x + 1 \\
 f(x) &= 2\left(x^2 + \frac{3}{2}x\right) + 1 \\
 f(x) &= 2\left(x^2 + \frac{3}{2}x + \frac{9}{16} - \frac{9}{16}\right) + 1 \\
 f(x) &= 2\left[\left(x + \frac{3}{4}\right)^2 - \frac{9}{16}\right] + 1 \\
 f(x) &= 2\left(x + \frac{3}{4}\right)^2 - \frac{18}{16} + 1 \\
 f(x) &= 2\left(x + \frac{3}{4}\right)^2 - \frac{18}{16} + \frac{16}{16} \\
 f(x) &= 2\left(x + \frac{3}{4}\right)^2 - \frac{2}{16} \\
 f(x) &= 2\left(x - \left(-\frac{3}{4}\right)\right)^2 + \frac{1}{8} \\
 f(x) &= 2\left(x + \frac{3}{4}\right)^2 - \frac{1}{8}
 \end{aligned}$$

Mar 29-10:48 AM

Complete the Square

$$f(x) = \frac{1}{2}x^2 + 5x - 3$$

$$\left(\frac{10}{2}\right) = (-5)^2 = 25$$

$$f(x) = \frac{1}{2}(x^2 + 10x) - 3$$

$$5 \div \frac{1}{2}$$

$$f(x) = \frac{1}{2}(x^2 + 10x + 25 - 25) - 3$$

$$5 \times \frac{2}{1}$$

$$f(x) = \frac{1}{2}(x+5)^2 - 25 - 3$$

$$= 10$$

$$f(x) = \frac{1}{2}(x+5)^2 - 25 - 3$$

$$f(x) = \frac{1}{2}(x+5)^2 - \frac{25}{2} - \frac{6}{2}$$

$$f(x) = \frac{1}{2}(x+5)^2 - \frac{31}{2}$$

Mar 29-10:53 AM

$$C(t) = 0.2t^2 - 10t + 650$$

$$0.2(t^2 - 50t) + 650$$

$$0.2(t^2 - 50t + 625 - 625) + 650 \quad \left(\frac{50}{2}\right)^2$$

$$0.2[t - 25]^2 - 625 + 650 \quad 625^2 - 625$$

$$0.2(t - 25)^2 - 125 + 650$$

$$0.2(t - 25)^2 + 525$$

$f(x) = a(x - h)^2 + k$

$$(25, 525)$$

At 25 cars the cost to make each car is minimized to \$525.

Nov 1-7:33 AM

Case No.	Case Name	Case Address	Case City	Case State	Case Zip	Case Phone	Case Email	Case Date	Case Time	Case Status	Case Notes
1	John Doe	123 Main St	New York	NY	10001	212-555-1234	john.doe@example.com	2023-10-27	14:30	Completed	Initial assessment and data collection.
2	Jane Smith	456 Elm St	Los Angeles	CA	90001	310-555-5678	jane.smith@example.com	2023-10-28	10:00	In Progress	Interview with subject and review of records.
3	Robert Johnson	789 Oak St	Chicago	IL	60601	312-555-9012	robert.johnson@example.com	2023-10-29	09:00	Pending	Awaiting further information from the client.
4	Maria Garcia	101 Pine St	San Francisco	CA	94101	415-555-3456	maria.garcia@example.com	2023-10-30	11:00	Completed	Final report and recommendations provided.
5	David Lee	202 Birch St	Seattle	WA	98101	206-555-7890	david.lee@example.com	2023-10-31	13:00	In Progress	Conducting follow-up interviews and analysis.
6	Emily White	303 Cedar St	Portland	OR	97201	503-555-2345	emily.white@example.com	2023-11-01	15:00	Pending	Waiting for data from external sources.
7	Michael Brown	404 Maple St	Denver	CO	80201	303-555-6789	michael.brown@example.com	2023-11-02	10:30	Completed	Analysis complete, report drafted.
8	Sarah Davis	505 Spruce St	Phoenix	AZ	85001	602-555-0123	sarah.davis@example.com	2023-11-03	12:00	In Progress	Reviewing findings and preparing conclusions.
9	James Wilson	606 Ash St	San Diego	CA	92101	619-555-4567	james.wilson@example.com	2023-11-04	14:00	Pending	Final review and approval process.
10	Lisa Anderson	707 Hickory St	San Jose	CA	95101	408-555-8901	lisa.anderson@example.com	2023-11-05	16:00	Completed	Project closed, all data archived.

Oct 24-7:31 AM